REMARKS/ARGUMENTS

Allowable Claims

The Office Action stated that Claims 2-5, 7-8, 17-20 and 22-23 are rejected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants respectfully thank the Examiner for indication of allowance of claims 2-5, 7-8, 17-20 and 22-23. However, the rejections to claims 1, 6, 16 and 21 are respectfully traversed as discussed below.

Claim Rejections under 35 U.S.C. § 103

The Office Action rejected claims 1, 6, 16 and 21 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 7,065,327 to MacNally et al. (the MacNally reference) in view of US Patent No. 6,768,443 to Willis (the Willis reference). However, there are clear errors in the rejection in that neither the MacNally reference nor the Willis reference, either alone or in combination, disclose or make obvious the requirements of claims 1, 6, 16 and 21 under 35 U.S.C. § 103. As such, a prima facie case of obviousness has not been made.

Restriction/Election

The claims 9-15 and 24-30 drawn the non-elected invention are canceled herein. Claims 31 to 35 are added to the elected invention of an adjustable load coupled to the second winding.

Independent Claim 1 and dependent claim 6

The Office Action has failed to provide a prima facie case of obviousness for independent claim 1 because it has not shown that the cited references disclose or make obvious the element, *inter alia*, of claim 1 of, "an adjustable load operably coupled to the second winding to compensate for differing loads on the second winding in transmit mode when the power amplifier is enabled and receive mode when the low noise amplifier is enabled, wherein the adjustable load is operable to provide a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and the power amplifier is enabled and provides a second different impedance based on a

second impedance selection signal when the radio front end is in a receive mode and the low noise amplifier is enabled such that impedance at the first winding is substantially similar in the transmit mode when the power amplifier is enabled and in the receive mode when the low noise amplifier is enabled." As stated in paragraphs 35 and 36 of the specification:

> "The adjustable load 106 is adjusted based on an impedance selection signal 108 and is coupled to the low noise amplifier 72 and power amplifier 84. The adjustable load provides a 1st impedance based on the impedance selection signal 108 when the radio front-end is in a transmit mode (i.e., the power amplifier 84 is enabled and low noise amplifier 72 is disabled) and provides a 2nd impedance based on the impedance selection signal 108 when the radio front-end is in a receive mode (i.e., the power amplifier 84 is off and the low noise amplifier 72 is on) such that the impedance on the 1st winding is substantially similar in the transmit mode and in the receive mode of the radio.
>
> [0036] In operation, the loading on the 2nd winding 104 varies depending on whether the power amplifier 84 is enabled or the low noise amplifier 72 is enabled. During a calibration function of the wireless communication device, the particular loading during the transmit and receive modes may be determined. Based on this determination, the impedance selection signal 108 may be generated to provide the desired loading of adjustable load 106 such that it provides a 1st load during transmit mode and a 2nd impedance during receive mode such that the load on the 2nd winding 104 remains substantially constant whether the radio is in a transmit mode or receive mode."

Figure 3 is reproduced below as an illustration of one of the embodiments. Figures 1, 2 and 4 through 9 illustrate additional embodiments as well.

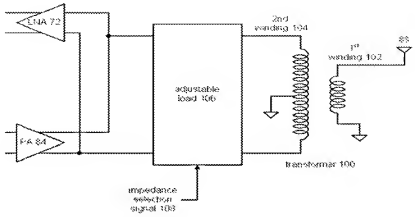
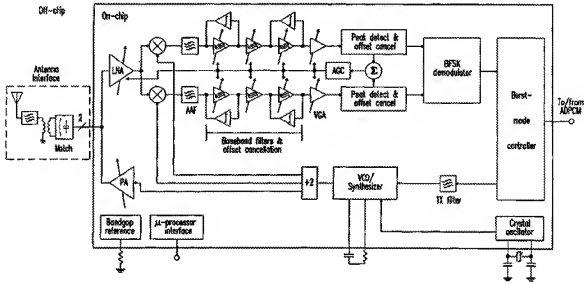


FIG. 3
radio front end 95

1. Combination of the References fail to disclose the Elements of the Claims

The combination of the McNally and Willis references fail to disclose the element, *inter alia*, of claim 1 of, "an adjustable load operably coupled to the second winding to compensate for differing loads on the second winding in transmit mode when the power amplifier is enabled and receive mode when the low noise amplifier is enabled, wherein the adjustable load is operable to provide a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and the power amplifier is enabled and provides a second different impedance based on a second impedance selection signal when the radio front end is in a receive mode and the low noise amplifier is enabled such that impedance at the first winding is substantially similar in the transmit mode when the power amplifier is enabled and in the receive mode when the low noise amplifier is enabled." In fact, the combination of the references teaches away from the elements of the claims.

With respect to the MacNally reference, it nowhere discloses ***an adjustable load*** coupled to a second winding of a transformer or ***any type of impedance selection signal***. Figure 1 of the MacNally reference is reproduced below.



As seen in Figure 1, the Antenna Interface shows a "Match" block with generic symbols for an inductor and a capacitor. The MacNally reference describes the Antenna Interface at column at Column 5, lines 11 through 14 and states that the "Antenna Interface" in Figure 1 includes, "an ISM band filter 112, a balun 114, an RF matching network 116 . . .". The MacNally describes at Column 6, lines 51 through 56 that the low noise amplifier (LNA) has a first impedance transformation network, seen in Figure 2, for receiving a signal. In addition, the power amplifier has another singly matched network associated with it for transmission of a signal, as seen in Figure 12. The MacNally reference thus teaches that the power amplifier and low noise amplifier have different associated impedance networks that are not adjustable. Furthermore, there is no description in the MacNally reference of a selection signal. Since the McNally reference discloses that the power amplifier and low noise amplifier have different associated impedance networks that are not adjustable, it teaches away from and nowhere discloses the element, *inter alia*, of claim 1 of, "an adjustable load operably coupled to the second winding to compensate for differing loads on the second winding in transmit mode when the power amplifier is enabled and receive mode when the low noise amplifier is enabled, wherein the adjustable load is operable to provide a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and the power amplifier is enabled and provides a second different impedance based on a second impedance

selection signal when the radio front end is in a receive mode and the low noise amplifier is enabled such that impedance at the first winding is substantially similar in the transmit mode when the power amplifier is enabled and in the receive mode when the low noise amplifier is enabled."

With respect to the Willis reference, it also teaches away from the elements of claim 1. Without further explanation, the Office Action states on page 3, second paragraph that, "Willis discloses such adjustable load (fig. 1/no. 16, especially R2 and R5)." The Office Action has misinterpreted the teachings of the Willis reference. The adjustable load of R2 and R5 are only described in the Willis reference as being adjusted as the common mode of receive and transmit signals varies over a twisted pair or other line. The Willis reference states at column 2, lines 17 through 40:

> "The present invention can be more fully described with reference to FIGS. 1 through 4. FIG. 1 illustrates a schematic block diagram of a telecommunication analog front end 10. The analog front end (AFE) 10 includes a digital to analog converter 12, an analog to digital converter 14, and a hybrid circuit 16. The digital to analog converter 12 receives digital transmission signals 22 from a telecommunication processing device (e.g., a SHDSL modem, HDSL modem, ADSL modem, UADSL modem, 56 k modem, et cetera). The digital to analog converter 12 converts the digital transmission signals 22 into analog transmit signals 24, which are provided to the hybrid circuit 16.
>
> The hybrid circuit 16 includes a transformer T1 and a plurality of resistors R1 through R6. As coupled, the resistors R1 through R6 provide the coupling of transmission data and receive data. The transmit data is represented by the transmit signals 24 and the receive data is represented by receive signals 26. With this embodiment of the hybrid circuit 16, resistors R2 and R5 are adjustable to provide a balanced impedance matching of the line driven by the secondary winding of the transformer T1. As the resistors R2 and/or R5 are adjusted to provide impedance

matching, the common mode of the receive and transmit signals 24 and 26 vary."

There is no description in the Willis reference that the R2 and R5 are adjusted in response to a transmit mode when a power amplifier being enabled or in response to a receive mode when a low noise amplifier is enabled. As such, the Willis reference also fails to disclose the elements of claim 1 of, "an adjustable load operably coupled to the second winding to compensate for differing loads on the second winding in transmit mode when the power amplifier is enabled and receive mode when the low noise amplifier is enabled, wherein the adjustable load is operable to provide a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and the power amplifier is enabled and provides a second different impedance based on a second impedance selection signal when the radio front end is in a receive mode and the low noise amplifier is enabled such that impedance at the first winding is substantially similar in the transmit mode when the power amplifier is enabled and in the receive mode when the low noise amplifier is enabled."

Since neither reference discloses this element of claim 1, the combination necessarily fails to disclose or teach the element, *inter alia*, of claim 1 of, "an adjustable load operably coupled to the second winding to compensate for differing loads on the second winding in transmit mode when the power amplifier is enabled and receive mode when the low noise amplifier is enabled, wherein the adjustable load is operable to provide a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and the power amplifier is enabled and provides a second different impedance based on a second impedance selection signal when the radio front end is in a receive mode and the low noise amplifier is enabled such that impedance at the first winding is substantially similar in the transmit mode when the power amplifier is enabled and in the receive mode when the low noise amplifier is enabled."

2. Combination of the References fails to Make Obvious the Elements of the Claims

The Office Action has not failed to prove how the combination of the MacNally and the Willis reference suggests or otherwise makes obvious the claimed elements. In

fact, the combination teaches away from the claimed requirements. The Office Action states on page 3, second paragraph that:

> "MacNally disclose that the RF matching network is designed to provide a matching impedance (50 ohms), in transmit or receive mode, to match the impedance of the first winding (antenna impedance (50 ohms), col. 6/ln. 37-56) but not explicitly and adjustable load. Willis discloses such adjustable load (fig. 1/no. 16, especially R2 and R5). Therefore, it would have been obvious to one of ordinary skill in the art for MacNally to utilize such adjustable load configuration, as taught by Willis, in order to improve transmission signals while optimized power consumption effectively."

However, the Office Action has misinterpreted the disclosures of the Willis reference and the McNally reference. The MacNally reference states at Column 6, lines 51 through 56 that a low noise amplifier (LNA) has a first impedance transformation network, seen in Figure 2, for receiving a signal while the power amplifier has a singly matched network associated with it for transmission of a signal, as seen in Figure 12. The MacNally reference thus teaches that the power amplifier and LNA have different associated impedance networks for transmission and reception of a signal. This teaches away from an adjustable load with a selection signal. The Willis reference only discloses that R2 and R5 are adjusted as the common mode of receive and transmit signals vary over a twisted pair or other line. Even if combined, it would only provide that adjustable resistors R2 and R5 are adjusted in the MacNally reference as the common mode of receive and transmit signals vary over a twisted pair or other line. Such a combination fails to make obvious the elements of claim 1. When evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. In re Fine, 873 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claim 6 is dependent upon claim 1 and introduces additional patentable subject matter. The applicant believes that the reasons that distinguish claim 1 over the present rejection are applicable in distinguishing claim 6 over the same rejection.

Independent Claim 16 and dependent claim 21

For similar reasons as stated with respect to claim 1, the Office Action has failed to provide a prima facie case of obviousness for independent claim 16 because it has not shown that the cited references disclose or suggest the element, *inter alia*, of claim 16 of, "a radio front end includes . . . an adjustable load operably coupled to the second winding, wherein the adjustable load provides a first impedance based on a first impedance selection signal when the radio front end is in a transmit mode and provides a second impedance based on a second impedance selection signal when the radio front end is in a receive mode such that impedance at the first winding is substantially similar in the transmit mode and in the receive mode." Claim 21 is dependent upon claim 16 and introduces additional patentable subject matter. The applicant believes that the reasons that distinguish claim 16 over the present rejection are applicable in distinguishing claim 21 over the same rejection.

Independent Claim 31 and dependent claims 32-35

For similar reasons as stated with respect to claim 1, the cited references fail to disclose or make obvious the element, *inter alia*, of claim 31 of, "at least one adjustable load operable to vary an impedance value at the second winding to compensate for a variable load between the transmit mode when the power amplifier is operable and a receive mode when the low noise amplifier is enabled, wherein the adjustable load is operable to provide a first impedance value in response to a first impedance selection signal when the radio front end is in a transmit mode and is operable to provide a second impedance value based on a second impedance selection signal when the radio front end is in a receive mode such that impedance on the second winding is substantially similar in the transmit mode and in the receive mode." Claims 32-35 are dependent upon claim 31 and introduce additional patentable subject matter. The reasons that distinguish claim 31 over the cited references are applicable in distinguishing claims 32-35 over the cited references.

CONCLUSION

For the foregoing reasons, the applicant believes that the claims are in condition for allowance and respectfully request that they be passed to allowance.

The Applicant hereby rescinds any disclaimer of claim scope made in the parent application or any predecessor application in relation to the instant application. The Examiner is advised that any such previous disclaimer and the prior art that it was made to avoid, may need to be revisited. Further, the claims in the instant application may be broader than those of a parent application. Moreover, the Examiner should also be advised that any disclaimer made in the instant application should not be read into or against the parent application.

No additional fees are believed to be due. In the event that additional fees are due or a credit for an overpayment is due, the Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Garlick & Markison Deposit Account No. 50-2126

The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication would advance the prosecution of the present invention.

RESPECTFULLY SUBMITTED,

By: /Jessica W. Smith/ Reg. No. 39,884
Jessica W. Smith
Garlick & Markison
P. O. Box 160727
Austin, TX 78716-0727
Phone: (972) 240-5324
Fax: (888) 456-7824
email: jsmith@texaspatents.com